NEWCOMPACTISM

New Urbanism vs Compact City: Investigation of the Relationships between Urban Micro- and Macro-Scale Effects on Travel Behaviour

**Funding:** European (7th RTD Framework Programme)
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**Status:** Complete with results
**Total project cost:** €185,363
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**Call for proposal:** FP7-PEOPLE-2011-IOF
CORDIS RCN: 103751

**Background & policy context:**
Urban sprawl and excessive car use are two critical threats for the sustainability of contemporary cities. Two main planning approaches have so far been proposed to address these phenomena: The New Urbanism and the Compact City.

One of the main criteria was their environmental effectiveness, especially on transport. Thus, a considerable number of studies focused on the relationship between urban form and travel choices. The main difference is that in US the focus was mainly on the relation between urban micro-scale characteristics (road network structure, bicycle and pedestrian infrastructure, urban furniture, density at the neighbourhood level, local accessibility) and travel behaviour, while in Europe most studies focused on urban macro-scale (city density, distance to centre, land use mix). The paradox, however, is that although policies and plans at both scales (micro-US, macro-Europe) have been promoted, the phenomena continue to expand on both continents.

**Objectives:**
Newcompactism will attempt to provide answers to the following questions. Could the interventions in only one spatial level lead to significant changes of travel behaviour? Should the interventions be directed towards both spatial levels simultaneously? What is the optimal mix between urban micro- and macro-scale policies for a sustainable urban perspective? Which are the parameters that affect this ideal balance of planning policies?

**Methodology:**
The proposed research will investigate the effects of urban macro- and micro-scale characteristics on travel behaviour in different urban environments (Europe and US) through quantitative and qualitative methods, focusing on the structural relationships between the two spatial levels. To investigate this relationship, a new critical parameter is introduced: the action space of the alternative means. In a second level the aim is to translate these relationships into integrated urban and transport policies scenarios, to evaluate them in terms of environmental efficiency and finally identify optimal policy scenarios of spatial development.

**Parent Programmes:**
FP7-PEOPLE - FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities

**Institute type:** Public institution
**Funding type:** Public (EU)
**Other programmes:** FP7-PEOPLE - FP7-PEOPLE-2011-IOF

**Lead Organisation:**
Key Results:

Planning transport solutions for cities

Should governments plan locally or regionally to reduce vehicle use? The answer is both, though with priority to the regional level, according to an EU study comparing urban form effects on vehicle travel at different spatial scales and contexts.

Growing urban sprawl means longer car trips and this affects the sustainability of cities. Planning interventions in urban form (e.g., new urbanism, compact city) have been suggested as a possible way to reduce vehicle use. Research in this area falls along a spectrum from total focus on the local spatial scale to total focus on the regional spatial scale, with most studies falling somewhere in between.

The Marie Curie project NEWCOMPACTISM (New Urbanism vs Compact City: Investigation of the relationships between urban micro- and macro- scale effects on travel behaviour) explored the respective roles of local and regional characteristics of urban form on vehicle travel. The main hypothesis of this research is that urban micro- and macro-scale characteristics exert complementary effects on vehicle trip frequency and vehicle kilometres travelled (VKT) due to the existence of two action spaces that individuals consider when they make travel decisions: the local (multimodal) action space, which is defined as the area that the typical walking, bicycle and public transport user can reach within acceptable travel time for a one-way trip, and the regional (mono- or oligo- modal) action space, which complements the local action space and is dominated by automobiles. The underlying assumption is that people consider an acceptable travel time to spend on each trip they want to make, a factor that is incorporated in their travel decision processes. The researchers explored the hypothesis in two case studies in different spatial contexts: the San Francisco Bay Area in the US and the Randstad area in the Netherlands.

Multilevel and ordered logit models results for the two case studies showed that the two urban scale characteristics exert complementary effects on Vehicle Kilometres Travelled (VKT), but not on vehicle trip frequency. However, because people in both areas display significantly lower VKT in the local than in the regional action space for all trip purposes (work, shopping, social/recreation), it is concluded that regional-scale interventions are more important for the policy objective of VKT reduction, although local-scale design policies might also contribute to achieving this policy goal. Node density and block size (for the local action space models) and regional jobs accessibility (for the regional action space models) demonstrated the strongest and most significant relationships with VKT. Moreover, results from 36 in-depth interviews conducted in Berkeley, California and Delft, The Netherlands as part of this research, supported the validity of the concept of acceptable travel time.

In conclusion, evidence from this research suggests that we promote planning on both spatial scales, though with priority to the regional level to make VKT reduction policies more effective.

Documents:
- Periodic Report Summary 2 - NEWCOMPACTISM (New Urbanism vs Compact City: Investigation of the relationships between urban micro- and macro- scale effects on travel behaviour)

STRIA Roadmaps: Smart mobility and services